

DOE Regional Carbon Sequestration Partnerships



**1st Annual Program Review
Regional Carbon Sequestration
Partnerships**

Nov 16-17, 2004

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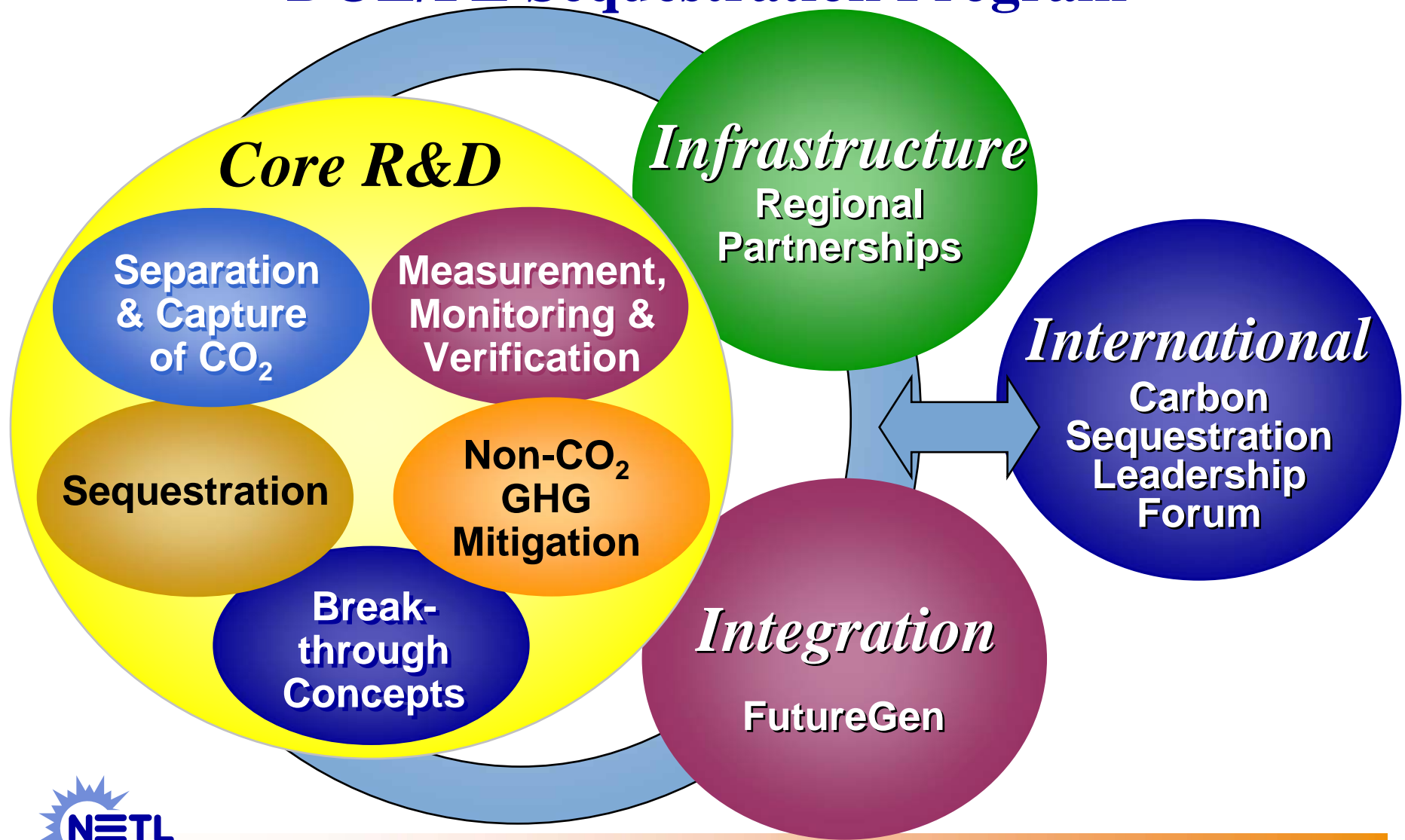
National Energy Technology Laboratory



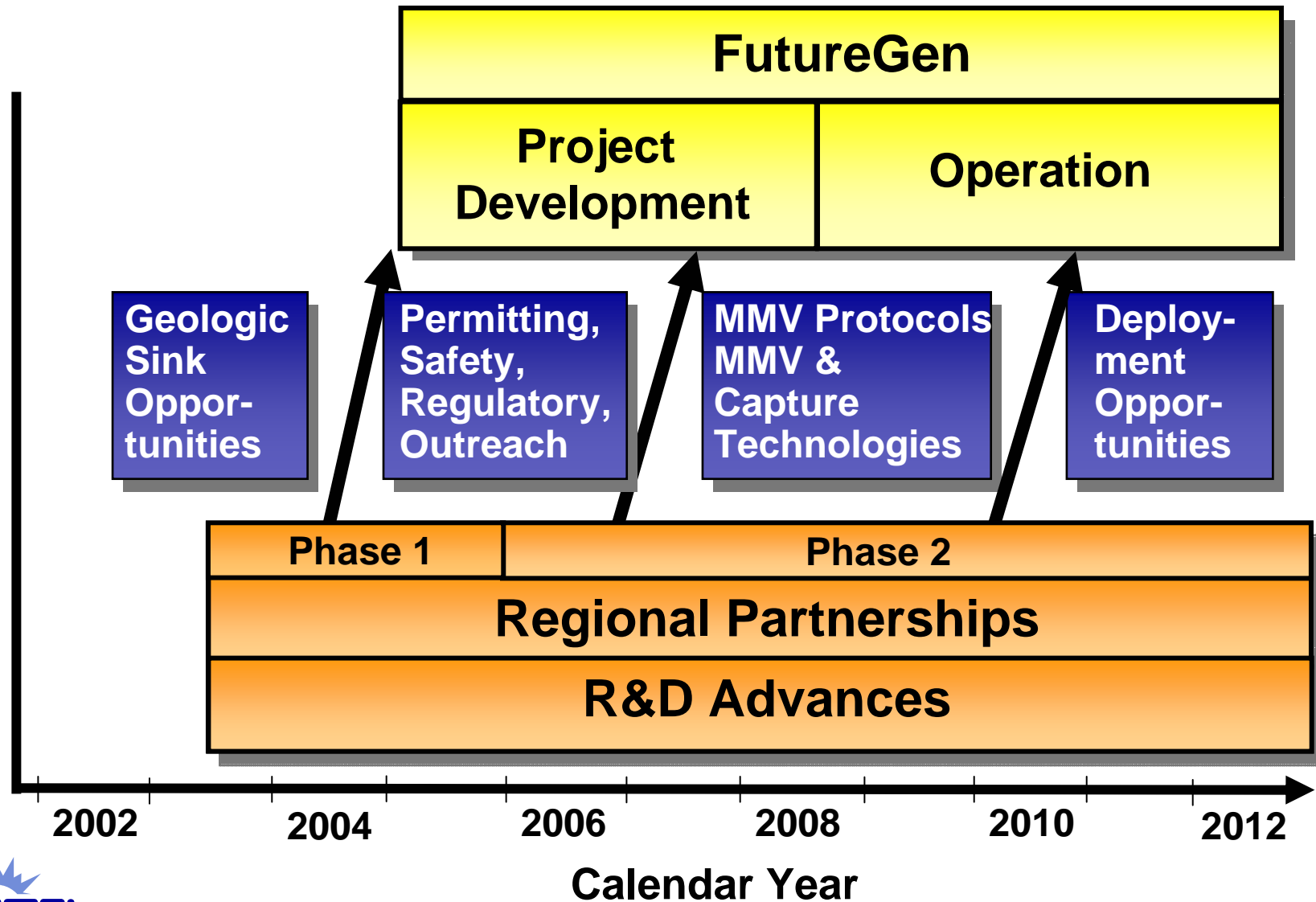
Office of Fossil Energy



Regional Partnerships are Key Element to DOE/FE Sequestration Program



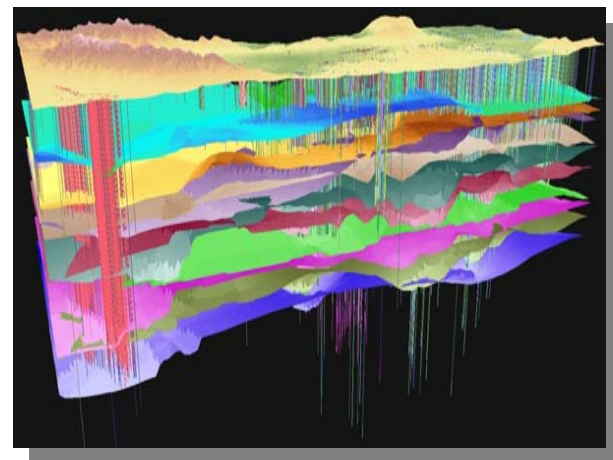
Critical Synergys



Two-Phased Approach

Phase I (Characterization)

- 7 Partnerships (40 states)
- 24 months (2003-2005)
- ~\$1.6 to 2.3 M DOE funding / project
- Overall ~ 40% cost share
- 2 exceed 50% cost share



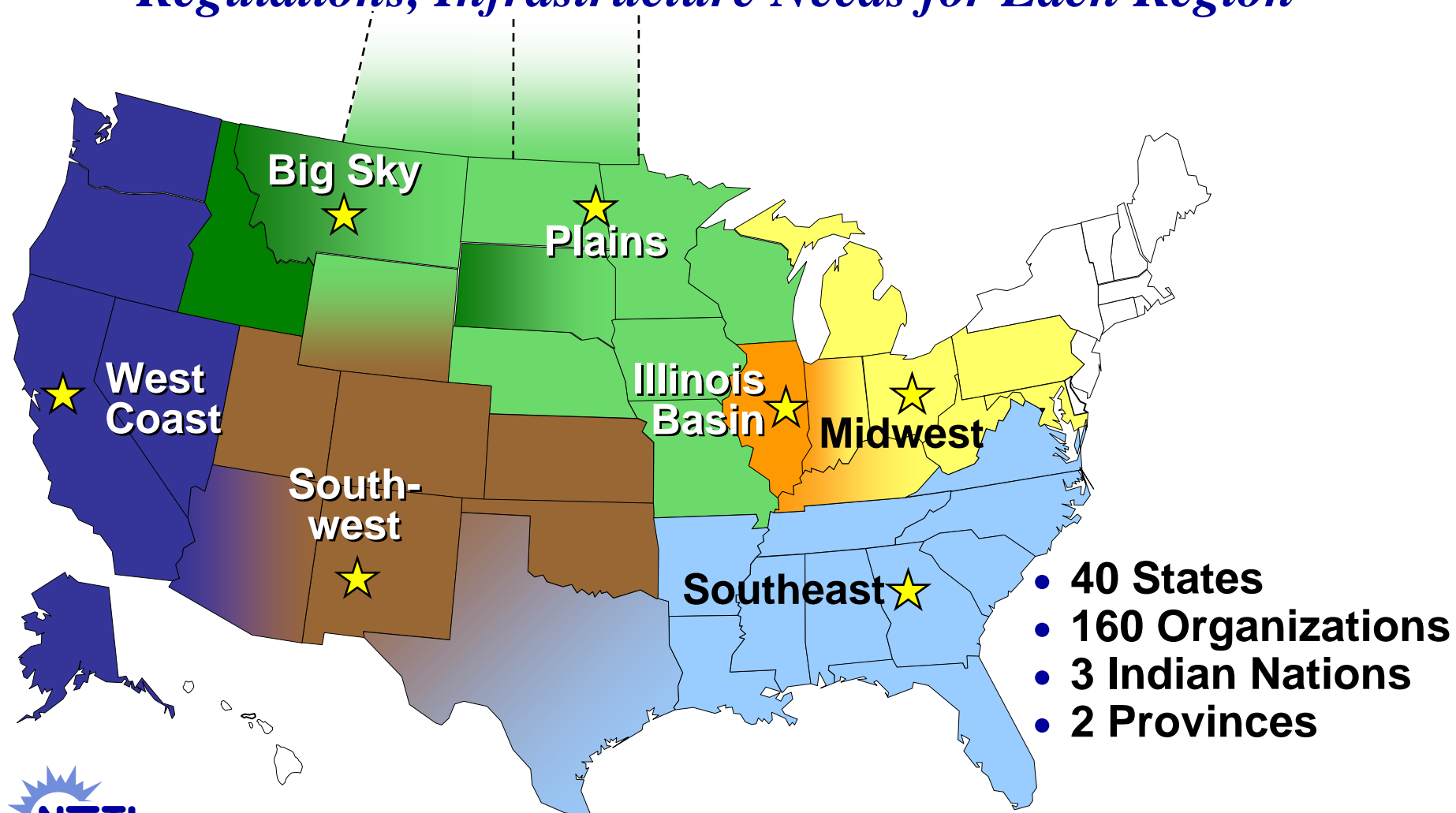
Phase II (Field Validation Tests)

- 8 years (2005-2013)
- ~\$31 million DOE funding / project
- ~ \$3 to \$4 M DOE funding / year / project
- Minimum 20% cost share
- Up to 7 regions



Seven Regional Partnerships

*Network of Partnerships to Determine Technologies,
Regulations, Infrastructure Needs for Each Region*



- 40 States
- 160 Organizations
- 3 Indian Nations
- 2 Provinces



Phase I Accomplishments

- **Carbon Sequestration Atlases**
 - GIS based regional systems & support to NATCARB
- **Decision support tools**
 - Assess sink characteristics for potential sites
 - Proximity to sources and transportation infrastructure
- **MMV technologies and protocols**
- **Matching sources with capture technology**
- **Permitting guidelines**
- **Outreach and education mechanisms**
 - Town hall meetings, focus groups, videos



Phase II Goals

- 1. Perform regional technology validation tests for 2012 technology assessment**
- 2. Refine and implement MMV protocols**
- 3. Continue regional characterization**
- 4. Regulatory compliance activities**
- 5. Implement public outreach and education**
- 6. Identify commercially available sequestration technologies ready for large scale deployment**
- 7. Regional partnerships program integration**

Not a technology development program!



Goal 1 - Regional Technology Validation Tests for 2012 Technology Assessment

Integrated Regional Approaches

- **Geologic sequestration**
- **Terrestrial sequestration**
- **Capture and transportation**
(field test not required)



Geologic Sequestration

- New wells preferred, unless adequate justification for existing site(s)
- Demonstrate safe CO₂ injection and storage
- Assess number of different sinks
- Conduct reservoir modeling



Terrestrial Sequestration

Bridge To Geologic

- **Costs vary widely by sink and region**
- **Ready for field demonstration**
 - Low hanging fruit
- **Size of demonstrations depends on sink**
- **Address use of models and/or MMV technologies**



Capture and Transportation

- **Is there a need for capture facilities?**
 - *No, unless region has the resources*
- **Match regional sources with capture technologies**
- **Assess transportation costs associated with construction, operations, and proximity of regional sources to sinks**



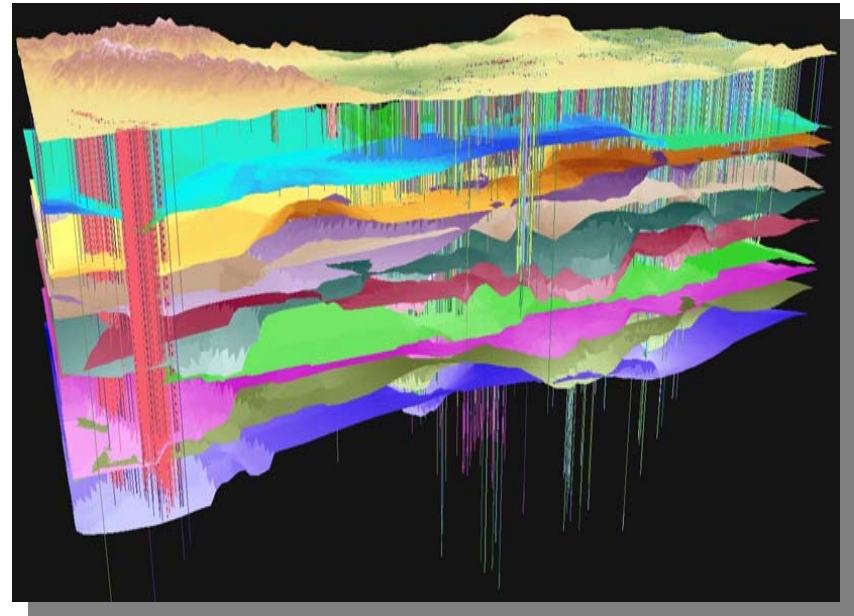
Goal 2 -Measurement, Mitigation & Verification Protocols

- **Apply appropriate tools for MMV**
 - Models and/or measurement technologies
- **Develop protocols to assess risks, model fate and transport, and verify permanence**
- **Develop strategies for risk mitigation**
- **Project guidelines should satisfy 1605B and emerging market requirements**



Goal 3 - Continue Regional Characterization

- **Refine regional characterization**
 - Sources
 - Sinks
 - Transportation infrastructure
 - Societal parameters
- **Refine GIS, database, and tools to assess sinks and economics of projects**



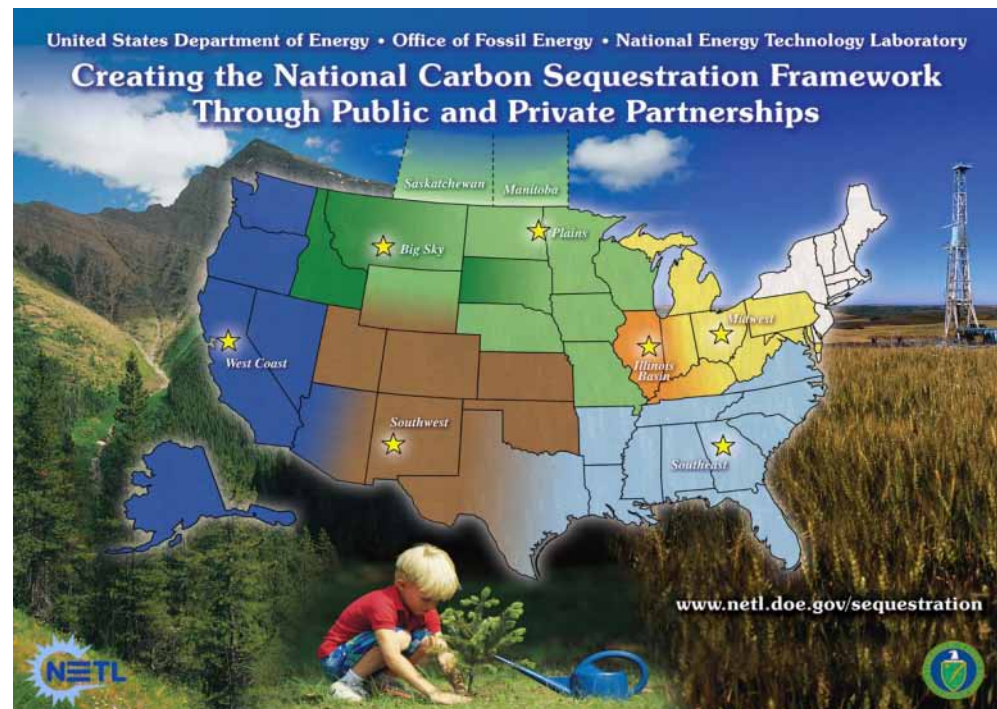
Goal 4 - Regulatory Compliance Activities

- **Capture, handling, transport, and sequestration**
- **Satisfy permitting requirements for feasibility project**
- **Develop permitting action plans for future large scale deployment in region**



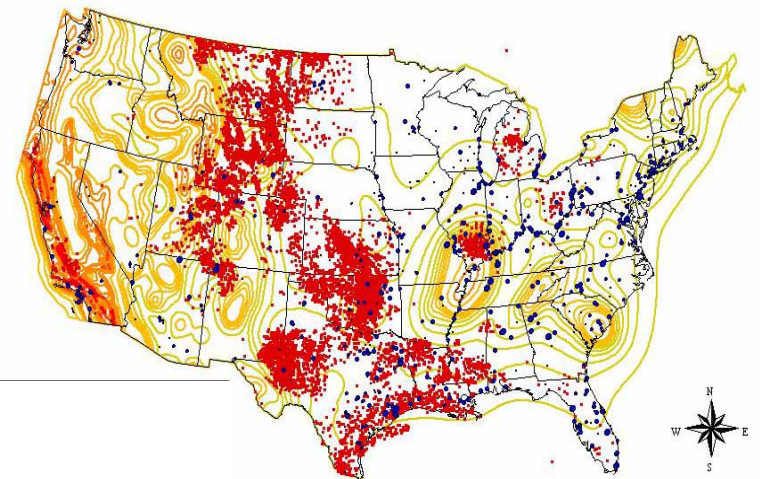
Goal 5 - Public Outreach and Education

- Broad implementation in region
- Strategies for project(s) implementation
- Develop and use outreach materials
 - Focus groups
 - Fact sheets
 - Town hall meetings
 - Websites
 - Curricula
 - Videos



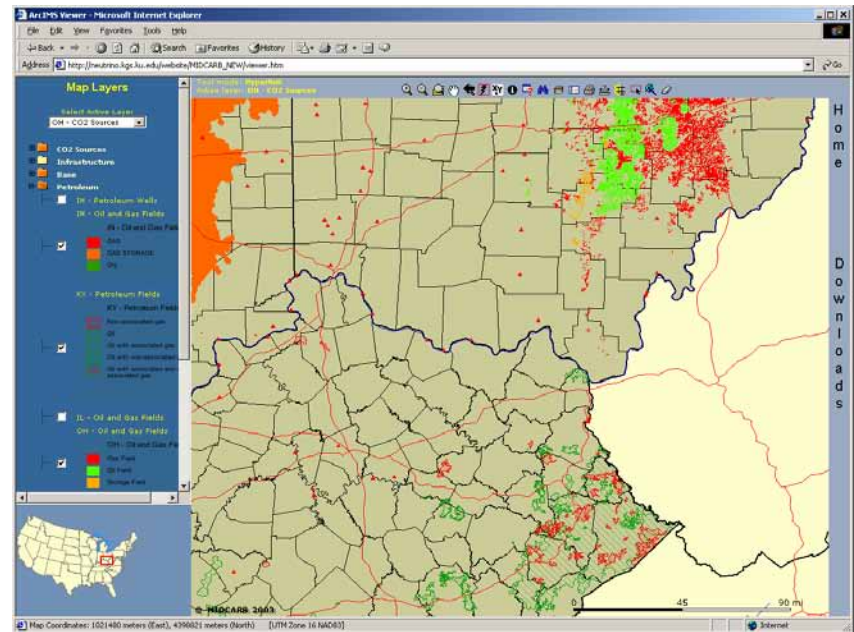
Goal 6 - Identify Commercially Available Sequestration Technologies Ready for Large Scale Deployment

- Detailed description of regional opportunities
- Deployment strategies for most promising technologies
 - Permitting requirements
 - MMV protocols
 - Economics
 - Phase II lessons learned
- Summary of public outreach tools



Goal 7 - Regional Partnerships Program Integration

- **Continue Technical Working Groups**
 - Resolve programmatic issues
 - Issue white papers on common issues
 - Technical workshops
- **Work with NATCARB**



Tentative Schedule for Phase II Solicitation

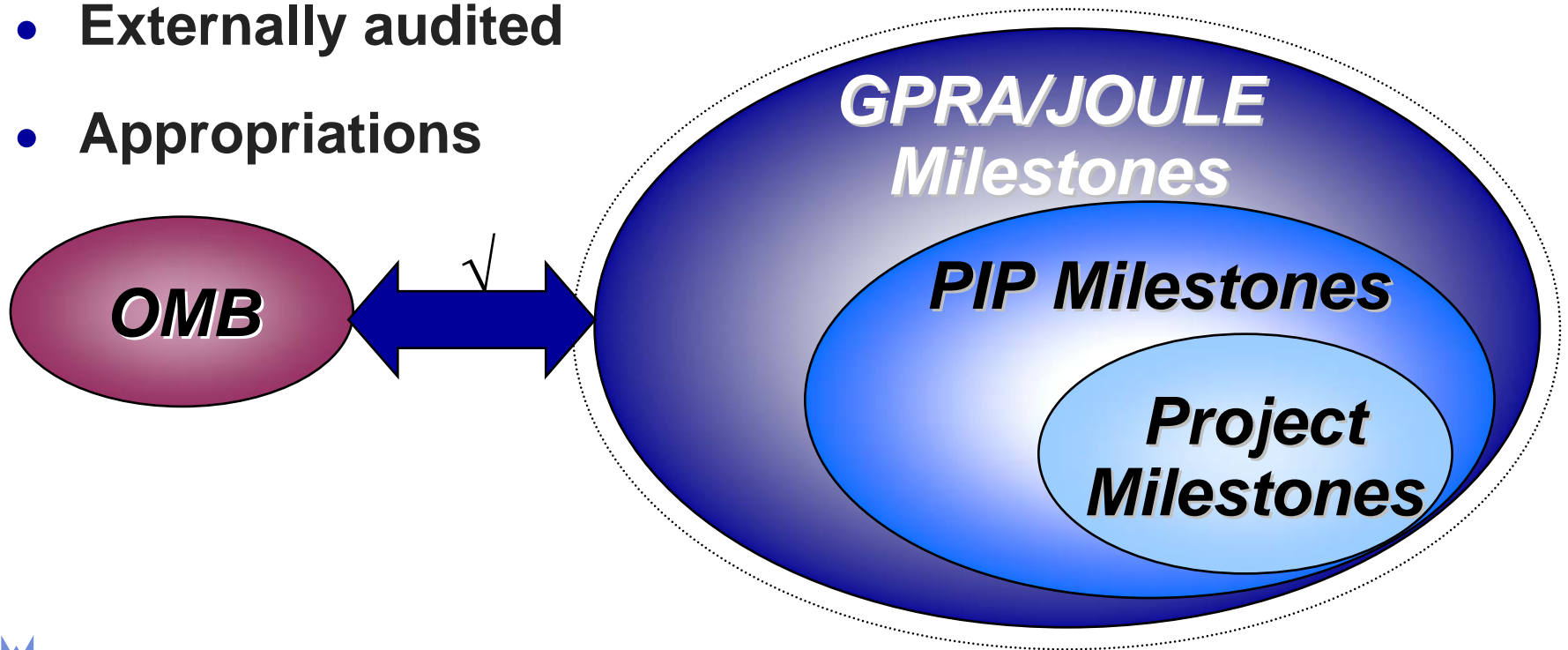
- **Solicitation issued: _____ January 2005**
- **Applications due (75 days): ____ April 2005**
- **Award(s): _____ September 2005**

***Schedule may change subject to solicitation approval
and budget appropriations**



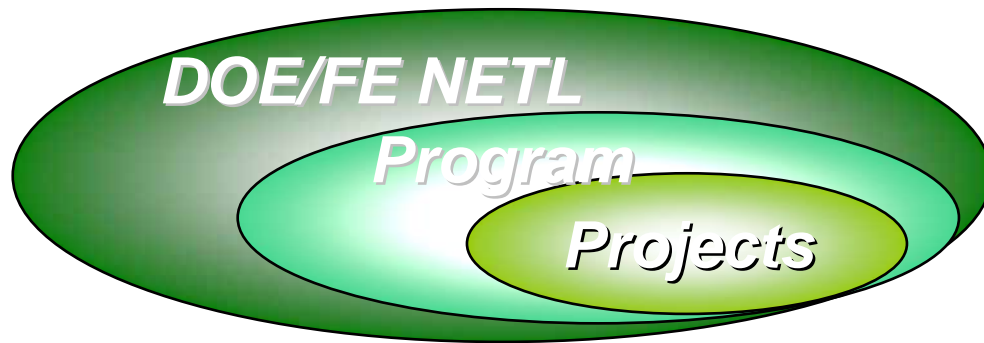
Program Accountability

- Government Performance and Results Act 1993
- Measure effectiveness of federal programs
- Externally audited
- Appropriations



Fiscal Responsibility

- Uncosted balances tallied end of FY



- Could affect appropriations
- Solution
 - Project schedule
 - Timely invoicing

Conclusion

- **Partnerships are key Element of DOE/FE NETL Carbon Sequestration Program**
- **Fossil fuels will continue to play a major role for decades**
- **Carbon sequestration technologies can be part of a national solution to GHG management**
- **Challenges for sequestration will be solved through public and private partnerships such as these**